PILOT PROJECT ON REPACKAGING & DISSEMINATION OF SCIENTIFIC AND TECHNOLOGICAL INFORMATION FOR DEVELOPING BIOGAS TECHNOLOGY - A CASE STUDY

PROJECT REPORT

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The Pilot Project Report

The pilot project on the repackaging and dissemination of scientific and technological information for development, in the field of new and renewable energies, particularly biogas technology promotion and utilization, was sponsored by UNESCO and undertaken by the Documentation and Information Centre, Tata Energy Research Institute (TERI). This has led to the generation of three information products, consisting of (i) a Biogas Manual for Extension Workers, (ii) a Biogas Manual for Plant Owners, and (iii) a Video Tape Presentation. The project activities based on a systematic approach followed by the evaluation of information products, have been summarized in this report along with general recommendations and a statement of project expenditure (Appendix I).

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1. INTRODUCTION

In recent years, intensive applied research activities in the area of renewable energy, specifically biogas research, have generated enormous scientific and technological literature. Biogas as one of the most potential technologies suitable for the rural areas of developing countries, has yet to be tapped fully. One of the factors responsible for this is the widening gap between the generators of information and the users. This situation has been aggravated further due to the ignorance and inability of the particular group of users to identify, procure, understand (with regard to technical information) and use the same for a specific purpose. In order to bridge this gap, the consolidation and repackaging of the appropriate information has been called for. These tools are intended to put the information to work, for a specific purpose.

With this backdrop, the present pilot project has undertaken to develop a set of information packages on the specific aspects of biogas technology promotion and utilization in a village situation. The main aim of these information products was to satisfy the direct and immediate application-oriented information needs of the selected user groups placed in a given agro-climatic, socio-economic and cultural environment.

The project activities have taken into consideration the case of family size spherical biogas plant promotion and utilization in a specific village situation. The selected user groups for the information products consist of development functionaries, extension workers, plant construction workers, end-users (plant owners), etc.

The information requirement for specific target groups was produced, both in traditional as well as non-traditional formats. These information products consisted of the following manuals and video tape presentation:

(i) Spherical Biogas Plants: A Manual for Extension Workers

(ii) Spherical Biogas Plants: A Manual for Plant Owners

(iii) Video Tape Presentation entitled "Towards Progress : A Film on Biogas"

Besides the English version of the information packages, the project generated information by-products, which are useful to the users of a particular linguistic region. These by-products consisted of the Hindi versions of the Manual for Plant Owners and the Video Tape Presentation.

The repackaging activities were accomplished by evolving a suitable methodology for the respective information products, keeping in view the coverage of the information contained, the user group and the format of the document. A general methodology adopted in the preparation of respective products such as the manuals and video tape presentation has been described along with the results of the products evaluated.

2. METHODOLOGY FOR REPACKAGING OF INFORMATION

The preparation of the repackaged information products was based on a systematic approach and the detailed guidelines for each of the steps involved. The preparation of information products was broadly based on the following:

(i) Study of the subject (biogas technology)

(ii) Compilation of the information products, specifically the manuals

(iii) Evaluation and preparation of the final version of the manuals

(iv) Preparation of the video tape presentation

(v) Evaluation of the video tape presentation

2.1 Study of the Subject

In order to have a basic understanding of the subject area and a close familiarty with its literature, the information analysts involved in the project studied the basic aspects of biogas technology, specifically with regard to basic technology and its application in rural areas which encompasses the socio-economic and cultural relevance of biogas technology. The acquired subject knowledge was intended for analyzing the textual information and for initiating the consolidation process. The study of the subject was followed by a delimitation of the subject scope, the formulation of a tentative outline and the listing of subject headings for the purpose of respective information packages.

2.2 Compilation of the Manuals

This includes the data collection, organization, presentation, translation and preparation of the final version, based on the evaluation of the products.

2.2.1 Data Collection

The required information for the respective products was collected by employing the techniques and tools of literature search and field survey:

(i) **Literature search:** In order to extract the textual information for the purpose of respective manuals, a retrospective search was made under the earlier listed subject headings. During this process, other peripheral information of value for the purpose of the manuals was also extracted. The literature search was conducted with the help of secondary source literature, specifically the earlier information products generated during the first phase of the information consolidation activity.

However, the updated information on the techno-economic aspects of biogas technology was accessed by inhouse database search and by consulting the survey reports, discussion papers etc. generated by TERI and other organizations.

Further, the latest information pertaining to government schemes on the promotion of biogas, was collected from the government documents and banks.

(ii) **Field survey:** In order to supplement the information collected through the literature search and to collect the information pertaining to the users' background, a field survey was conducted for techno-economic and socio-cultural information of the village selected for the purpose of the present activity. This information was gathered with regard to the following aspects:

- Average level of education, understanding and information gathering and accessing habits of the village people,
- Potential households for biogas technology and the attitude of their occupants,
- Procedural and operational problems, as conceived by owners and potential owners of the biogas plant, and
- On-site activities of extension workers in the promotion of biogas technology and the problems faced by them.

This information was collected by employing the techniques of personal interaction, informal interviews and observation.

The non-documentary information obtained was recorded in the form of *ad hoc* reports pertaining to specific issues and used in the preparation of the respective manuals and the video film.

2.2.2 Organization

This consisted of the analysis, evaluation and synthesis of the data elements collected from both published and un-published sources. The analyzed and selected information was classified and verified with regard to its authenticity and accuracy. The authenticity and accuracy of the data elements was confirmed by consulting the subject reference books. However, technical information pertaining to the construction, operation and maintenance of the spherical biogas plant was verified with the subject experts. Further, at this stage, highly technical and ambiguous concepts was weeded out and the classified information on a particular concept was synthesized.

2.2.3 Presentation

The most vital aspect of information repackaging is the communication of the thought content of the information products to the specific target group in a clear, interesting and comprehensive form.

The presentation of the information products has taken into account the average level of education, understanding, information accessing habits, etc. of the specific target groups (users). The presentation of the analyzed information was made broadly at two levels:

(i) Textual presentation

(ii) Formatting and layout

(i) Textual presentation: The extracted and evaluated information was presented in an interconnected manner to read like a single document. In order to achieve clarity, precision and conciseness, the following factors were considered:

(a) *Arrangement of thought content*

- The thought contents of the classified subject headings and subheadings were grouped and arranged together in a sequence under a broad subject heading, to form a chapter heading.
- Modifications were made and restructuring was done to maintain the continuty and logical flow of concepts between the paragraphs and chapters.
- The arrangement of the information content took into account the introduction of specific concepts followed by the expected activities of the reader.

(b) *Clarity of expression and easy understanding*

- Lengthy paragraphs were divided into smaller paragraphs. Similarly, short sentences using simple and common words were used for explaining the thought content.
- The occurrence of technical and locally-used terminologies was supplemented with adequate explanations.
- Various concepts were supplemented with both technical and non-technical illustrations to clarify the descriptive information.
- Comparative advantages and benefits were explained by citing suitable examples.
- Less pertinent information was also weeded out at this stage.

(c) *Increased recall*

- Uniformity in the citation of a specific term was maintained throughout the manual.
- Repetition of information, particularly in the Manual for Plant Owners, was made to establish a link with the previously cited concepts.

(d) *Involvement of the reader*

- The manuals have been written in a personalized style to make the reader feel involved.
- Locally-used terminology was used to make it more familiar to the users in a specific linguistic region and sufficient explanations were provided to serve the purpose of others.

(e) ***Use of illustrations***

- An adequate number of illustrations (line drawings), both technical and non-technical ~~in~~ nature, were provided in each of the manuals to make the information content more expressive and inviting to read.

(ii) Formatting and layout

In order to make the final setting of the textual information along with illustrations, guidelines were prepared on the basis of the principles of the physiology of the eye and the psychology of memory. This resulted in the following format:

(a) Double column presentation along with close placement of the text and respective illustrations.

(b) A different typeface was used for headings, subheadings and important terms highlighted within the text.

Besides presentation, the paper size was selected, keeping in mind the easy reproduction of the manual by making photocopies for the purpose of wider and quicker dissemination. Wider margins were assigned to save the text from wear and tear and to make use of the side space for notes.

2.2.4 Translation

The information products, specifically the Manual for Plant Owners, was translated into Hindi for the purpose of testing it with the end-users. The translation process took into account the various factors described under the presentation method.

2.3 Evaluation and Final Versions of the Manuals

The final versions of the repackaged products were prepared on the basis of the feedback received from subject experts and the users of respective manuals. The feedback information was collected through informal interviews and personal interaction.

For this purpose, the English versions of both the manuals were referred to the inhouse subject experts and the translated version of the Manual for the Plant Owners was circulated among the existing as well as potential biogas plant users of a village, where spherical biogas plants are being promoted.

The manuals were evaluated with regard to subject coverage, technical strength, clarity in communication, impact of illustrations and the usefulness of the manuals.

The quality and usefulness of the manual for Plant Owners, based on the feedback analysis, was found to be highly satisfactory.

However, the finalization of the Manual for Extension Workers was based on the suggestions received from subject experts with regard to the technical information content, specifically in the matter of sequential stages of the spherical biogas plant construction.

Further, in-depth subject headings were also minimized in order to avoid confusion on the part of the reader and to retain the readability of the manuals.

2.4 Preparation of the Video Tape Presentation

The involvement of a high cost of production in the repackaging of information and dissemination in the audio-visual medium called for a separate approach for its preparation. The video tape was, therefore, decided to be of a short duration (18 min).

The preparation of this product was preceded by a process conceptualization with regard to the information content, mode of presentation and motivational elements.

Considering that the main purpose of the product was that of a promotional tool which should reach a wider audience, the subject content was delimited to the implementation aspects of biogas technology. These aspects included the socio-economic and cultural benefits, the construction process, the procedure to own a plant, the role of extension workers, etc. The short duration of the video tape necessitated the selection and incorporation of the core information which could be presented visually.

The information in the field of predefined subject scope was carefully selected from the two manuals which were prepared under this project and classified in a sequence.

For the preparation of the script, the classified information was assimilated to form a story. This was done to make the presentation more inviting and absorbing to watch. The development of the script in the form of a story considered the following elements.

- Story having rural attributes such as a rural environment,
- Comparative advantages and disadvantages enumerated with the help of a pre- and post- biogas situation, leading to changes in the life style of the rural womenfolk, and
- Emphasis on economic benefits.

The preliminary script, prepared by the information analyst, was finalized after consulting the film experts. This was followed by background arrangements, such as the identification of a suitable location, and the selection of characters and objects for the purpose of picturization and recording. However, outside technical help was sought for the purpose of picturization and recording.

The final presentation was supported with both background commentary and light music. The background commentary was provided to make the message clear and to provide additional information on the subject area which could not be picturized, whereas the light music was provided to increase the aesthetic value, sustain the interst of the audience and add to the overall quality of the product.

2.5 Evaluation of the Video Tape Presentation

The first and second telecast of the video tape over the National Television Network (*Doordarshan*) received an overwhelming response from the audience and was followed by a third telecast. This in itself is an indication of the overall quality and potential of the product.

Further, the screening of this film to a large audience consisting of farmers, government officials, subject experts, bank field officers, extension workers, etc. was followed by an opinion survey and yielded a satisfactory response with regard to its quality and impact.

This has indicated the usefulness of the repackaged information in the audio-visual format and asserted the significant role of information professionals in the preparation of such a product.

3. CONCLUSIONS

The present project on information repackaging and dissemination activities has successfully generated utility oriented documents for meeting the immediate application needs of selected user groups. The second phase of repackaging activities has supplemented the information generated during the first phase of consolidation and slanted it to serve the immediate information needs of the users. This was made possible with the help of extensive field activities conducted for data collection and evaluation of the products.

The project experience has established the effective and efficient contribution of non-subject specialist information professionals in compiling and generating such information products in different formats, by evolving systematic approaches which are based on the information consolidation techniques. Further, this was confirmed on the basis of the usefulness of such products in the hands of the users.

The effective presentation of the repackaged information in the audio-visual format has not only provided a new dimension to information work, but also proved the capabilities of information professionals.

Finally, the need for this type of repackaging activities has been realized by both the generators of information and the end-users, for bridging the gap between the existence and the utilization of information in a specific subject area.

4. RECOMMENDATIONS

On the basis of the results and experiences of this project, specifically in the context of usefulness of such application-oriented repackaged information, it can be suggested that similar activities can be intensified in other areas of renewable energy technologies/appropriate technologies, which have promotional potential in the developing countries.

However, the following factors need to be reviewed for the purpose of repackaging of information and dissemination.

- Identification of the potential technology which is most appropriate for a geographical area having a typical agro-climatic and socio-economic set-up.

- Identification of the likely problems faced by the users of the technology.

- Identification of the immediate information needs of the end-users.

- Identification of the institutes/organizations involved in research and development activities of the technology, for the purpose of seeking their help in repackaging activities.

- Development of professional expertize by imparting training, specifically in the area of preparation of non-traditional documents.

- More emphasis on audio-visual information products.

- Greater interaction among the differest information centres of the developing countries involved in the scientific and technological information repackaging and dissemination activities.

Thus, the intensification of consolidation activities, particularly in the area of appropriate technology, is expected to play an important role in boosting, transferring and diffusing technologies among the end-users.

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APPENDIX - I

Statement Showing the Expenses Incurred on "Pilot Project on Repackaging & Dissemination of Scientific and Technological Information for Developing Biogas Technology : A Case Study

Sr. No.	Particulars	Budgeted Amount (US $)	Actual Amount. (Rupees)
		9,500.00	
1.	Preparation of Video Tape Presentation (Biogas) (Hindi & English)		67,810.00
2.	Preparation of Manuals (Hindi & English)		69,450.00
3.	Professional Time		66,000.00
4.	Contingencies		4,870.00
			2,08,130.00
	Total		US $ 16,171.00